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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,871	03/03/2004	Akihiko Tateiwa	300.1146	3131

21171 7590 06/24/2005

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EXAMINER	
STEIN, JAMES D	

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/790,871	TATEIWA, AKIHIKO	
	Examiner	Art Unit	
	James D. Stein	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3 and 5-12 is/are rejected.

7)☒ Claim(s) 4 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 3/03/04 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 0105, 0604
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

JPL

Claims 1-3 and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over [USPUB 2002/0085807] to Xiaofan, and further in view of [USPUB 2002/0141705] to Duelli et al.

Duelli et al. disclose a related optical collimator wherein the core of a optical fiber 21 is bonded to the end face 22a of a graded index optical fiber 22 (Fig. 2). Fig. 1 shows the enfaces of single-mode [0012] optical fibers 1 and 2 for emitting and receiving a beam of light [0011] disposed at a tilt angle α relative to the optical axis of the collimator structure [0012].

Therefore, Duelli et al. disclose the claimed invention except for the additional ferrule and capillary structure. Xiaofan discloses a related optical collimator comprising a plurality of unitary single-mode optical fibers (22, 23) each having a core (C1, C2) and a ferrule 27 (Fig. 1) for supporting the optical fiber assembly 21 inserted partially therein and bonded to (Figs. 2, 7, 9, 10, and 12 show plural nature of fibers and capillary). Furthermore, Xiaofan discloses a ferrule 27 for supporting the optical fiber assembly (22, 23) inserted partially therein [0034, 0040, 0044] and bonded to [0032]. Therefore, it would have been obvious at the time of the invention to modify the collimator structure as taught by Duelli et al. to include the additional ferrule and capillary structure as described above in order to provide for a compact optical module that is easy to assemble [0007].

With regard to claims 2 and 3, in addition to the rejection of claim 1 previously discussed above, the end face of the graded index optical fibers (top portion of 1 and 2) are tilted at an angle angle α (Fig. 1). Furthermore, because Xiaofan teaches the optical fiber elements to be included co-linearly in a capillary as discussed above, the end face of the capillary will inherently have the same tilt angle α as the graded index optical fibers relative to the optical axis of the collimator structure 10.

With regard to claim 5, in addition to the rejection of claim 1 previously discussed above, Figs. 2, 7, 9, 10, and 12 show the capillary 27 has an end with facets. In view of the Duelli et al. reference discussed above, the capillaries will include the graded index optical fiber 21 (Fig. 2). Therefore, the end face of the graded index optical fiber 21 will be located at one of these facets.

With regard to claim 6, in addition to the rejection of claim 1 previously discussed above, Figs. 2, 7, 9, 10, and 12 show the end faces of the respective graded index optical fibers to be arranged symmetrically relative to the center of the capillary 27.

With regard to claim 7, in addition to the rejection of claim 1, Duelli teaches the graded index optical fiber 22 to be fusion-bonded to the single-mode optical fiber core 21 [0028].

With regard claims 8 and 9, in addition to the rejection of claim1 previously discussed above, the Duelli et al. reference teaches the optical collimator structure to be used in combination with a mirror 13 (reflective surface), or an interference filter ([0011] and [0013]). Furthermore, the Xiaofan reference also teaches a reflective surface (mirror) 25a used in combination with the collimator structure.

With regard to claims 10-12, in addition to the rejection of claim 1 previously discussed above, the Duelli et al reference teaches the collimator structure to both emit a beam of light, and receive a totally reflected beam of light [0011].

Allowable Subject Matter

Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the cited prior art discloses or suggests the optical collimator structure as previously discussed above, further comprising a conically shaped capillary end face, at which the end face of the graded index optical fiber is located.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. [USPUB 2005/0084206] to Gutin et al., which discloses a related optical collimator device, and [USPAT 5,953,477] to Wach et al., which discloses optical fibers with various end face arrangements.

The prior art documents submitted in the Information Disclosure Statement filed on 6/23/04 and the European Search Report filed on 1/18/05 have been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James D. Stein whose telephone number is (571) 272-2132. The examiner can normally be reached on M-F (8:00am-4:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James D. Stein

John D. Lee
Primary Examiner